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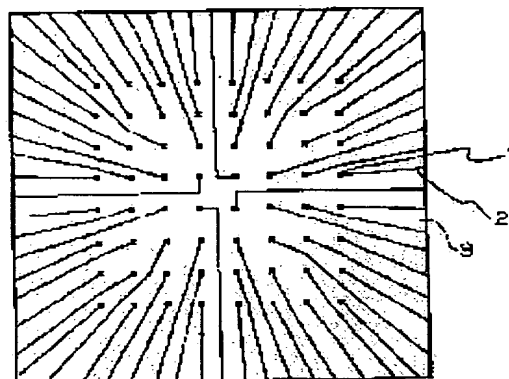
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## (54) INTEGRATED COMPOSITE ELECTRODE

## (57)Abstract:

PURPOSE: To enable the simultaneous multipoint excitation and record of the neurocytes over a long period of time and to enhance responsiveness by limiting the length on one side or diameter of square or circular electrodes to a specific range.

CONSTITUTION: This integrated composite electrode has plural pieces of the electrodes 1 which are equal in the nearest inter-electrode distance to each other on an insulating substrate 3. Lead wires 2 are approximately radially disposed from the electrodes 1 and an insulating layer to cover these lead wires 2 is provided. The shape of the electrodes 1 is preferably formed to the circular or square shape in order to maintain the specified nearest inter-electrode distance. The change in the potential  $V$  to be measured decreases when a resistance value  $R$  decreases when a current value  $I$  is constant. Namely, the electrical activity of the cells to be measured decreases and  $S/N$  falls. The electrode area is, therefore, required to be prudently adjusted. Then, the electrodes 1 are the square or circular shape and the length or diameter of the one side is specified to the value larger than  $20\mu\text{m}$  and smaller than  $200\mu\text{m}$ .



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